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OPHTHALMIA NEONATORUM.

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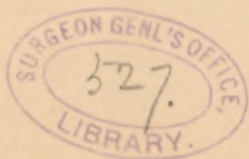
## OPHTHALMIA NEONATORUM.

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OPHTHALMOLOGIST TO THE PHILADELPHIA  
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ING SCHOOL; ASSISTANT DEMONSTRA-  
TOR OF SURGERY IN THE JEFFER-  
SON MEDICAL COLLEGE OF  
PHILADELPHIA, ETC.

A LECTURE BEFORE THE NURSE CLASS, THE  
MEDICAL STAFF, THE BOARD OF MAN-  
AGERS AND INVITED GUESTS OF THE  
PHILADELPHIA LYING-IN-CHAR-  
ITY AND NURSE TRAINING-  
SCHOOL.

*Ladies and Gentlemen.*—When invited by the executive committee of your institution to deliver a lecture this evening upon "Ophthalmia, its causes prevention and treatment," I was in doubt as to whether I should attempt to treat of all the varieties of ophthalmia, or only of some particular variety that you would perhaps come in contact with more than any other;



and after due consideration I arrived at the conclusion that it were better to talk of that variety which you will see more of as obstetrical nurses, so that you will recognize it when you see it and understand its causes, prevention and treatment.

The socket in which the eyeball is placed is lined by a mucous membrane known as the conjunctiva. This membrane commencing at the outer edge of the lids extends backward for a considerable distance, and is then reflected forward on the eyeball, that portion covering the lids being designated the palpebral conjunctiva, and that part covering the eyeball, the ocular conjunctiva. Now, ophthalmia is a disease of the eye, characterized by pain, redness, intolerance of light and excessive flowing of the tears, there being either a hyper-secretion or a genuine discharge, according to the variety; the inflammation for the most part being seated in the coats of the eyeball, or conjunctiva. The affection is sometimes known as conjunctivitis.

VARIETIES.—The varieties of ophthalmia are many, the chief among them being



simple, muco-purulent, purulent, diphtheritic and phlyctenular, the difference between them being more the degree of inflammation than the character of it.

Simple, or as it is sometimes called palpebral conjunctivitis, is an inflammation of the palpebral folds of the conjunctiva, that portion which covers the eyeball itself not being affected. It is characterized by redness, intense itching, burning and a sensation as if small grains of sand were under the lids, causing a desire to rub the eye continually. The causes are numerous and varied—such as extremes of temperature, this being the case when people tell you they have taken cold in the eyes; foreign bodies, as pieces of coal dust or of shell which are blown into the eyes as one walks along the street; cinders from the locomotive of a railway train; exposure to a vitiated atmosphere—a room filled with tobacco smoke for example; loss of sleep, as I am sure many of you have experienced after you have been nursing a tedious case all night without having had your sleep on the previous day. And one of the chief

causes is working without glasses when the eyes need them, or working with improperly fitted glasses. Indeed, we frequently have patients come to our offices complaining of nothing else but the burning sensation in the eyes, with agglutination of the lids upon waking in the morning, and almost always there is found some error of refraction which when corrected by proper glasses, the other symptoms disappear.

And these glasses should not be prescribed by an optician but by a skilled oculist, who has made a study of the eye from a medical and surgical standpoint—in other words, a graduated physician who has made a speciality of the diseases of the eye. It is frequently remarked by elderly persons that when they were young, glasses were not used nearly so much as now. To be sure they were not, but at that time there were not the educational advantages to be enjoyed as now. The child was not sent to school at so tender an age, and urged to work day and night in its endeavors to excel and gain a high degree of distinction. So many people did not gain

a livelihood by the constant use of the eyes then as now. There were fewer professional men, fewer scholars—in other words, there was less eye work, and consequently less eye strain and glasses were not required.

The present age is one of push, energy and ability, and to obtain a position in, or near, the front ranks of the vast army of people who are constantly pushing forward in their endeavors to reach the highest mountain peak of success, requires much persevering labor. It is almost impossible to attain any degree of distinction, in the present age, without at least a moderate general education; and an extensive education in one's particular vocation is absolutely necessary. To possess this requires much time and considerable use of the eyes, and in our efforts to hasten our success and excel our comrades, to reach the summit for which we have been striving, as quickly as possible, we use them inconsiderately; hence the weak eyes of ourselves and our children, to remedy which we are compelled to prescribe glasses,

which correct the defects and relieve the ophthalmia and the strain. Unless the cause of the ophthalmia be removed, the disease in a short time becomes chronic, and the treatment is more or less prolonged; but if taken early, the cause searched for and removed, the recovery is rapid.

The muco-purulent variety is really an exaggerated form of the simple, the difference, as stated above, being only in degree. In fact the causes are the same, to which may be added contagion, the material having come from some other eye and having been transmitted either through carelessness in not cleansing the hands, or perhaps by means of a towel or handkerchief, this frequently being the method of inoculation.

The purulent is an exaggerated form of the muco-purulent, the dose of the poison, as it were, having been larger, the soil more susceptible and the discharge being pus.

The diphtheretic is a variety, fortunately for us, rarely seen in this country.



As all diphtheretic inflammations it is characterized by the formation of a membrane, in this instance it being on the conjunctiva, and very adherent. The affection is inclined to be epidemic and is one of the utmost gravity.

The phlyctenular has the same symptoms as the muco-purulent, but is especially characterized by the appearance of small phlyctenulæ, or vesicles, on the ocular conjunctiva, and it is from these that it takes its name.

The muco-purulent and the purulent varieties, when occurring in the new-born child, are grouped together under the head of *Ophthalmia Neonatorum*, the variety that is of particular interest to you as obstetrical nurses, and to all who are connected with a Lying-in Hospital; and I have passed over the other varieties rapidly, each one of which would afford material for a whole lecture, merely mentioning a few of their chief symptoms, so that we might discuss this one at greater length. To be sure, gonorrhœal ophthalmia is to be classed with the above group, but as

this is only purulent ophthalmia from a specific cause it is hardly necessary to make another variety. The fewer the varieties the more easily understood is the disease.

As in all cases of ophthalmia, the real cause of ophthalmia neonatorum is a germ, just which particular one has not yet been fully determined, and the inoculation which takes place in one of two ways has been divided into the primary and secondary, the former taking place during, or immediately after, birth; the latter occurring in those cases in which there has been a sufficient length of time since the birth of the child to enable us to be sure that the affection is a result of post-partum inoculation.

The primary inoculation may be made in several ways. It frequently occurs in making manual examinations in face presentations; the eyelids are sometimes opened by instruments, allowing the vaginal discharge to enter; the mucous is sometimes retained on the lids after birth, sufficient care not having been taken to cleanse them thoroughly, and at a later

period entering the eye causes the dreaded inflammation; and again, a very frequent cause is the direct introduction of the contagious material caused by the opening of the eyelids by the tense perineum as the head is passing through the external orifice. This may at first seem to you to be improbable, but when you consider for a moment how very tense the perineum is and how the head is elongated, causing the eyes of the child to bulge forward, it is very easy to understand how, in passing over this taut, elastic structure, stretched to its utmost capacity, the palpebral fissure may be opened and the contagion introduced. Clinically it has been determined that males are more frequently attacked than females, owing to the fact that the head is usually larger, and the children of primiparae more frequently than those of multiparae, on account of the tediousness of the labor and the lesser degree of perineal elasticity and the weak expulsive pains toward the end.

The secondary inoculation is caused by failure on the part of the person receiving

the new-born infant to cleanse *immediately* everything from the eyelids, in the manner which I will explain to you later; by direct contact with unclean materials, such as towels, sponges, etc., and in a manner that frequently occurs, by bathing the face and eyes with the same water with which the body has been sponged. Of course irritants, like soap, bay rum, bright lights, etc., may cause a mild type of conjunctivitis, but not the horrible ophthalmia neonatorum of which we are speaking.

**SYMPTOMS.**—The symptoms, which may be divided into four stages, we are all familiar with. First, we have the period of inoculation, which usually is only a few hours; then a short period in which lymph, the exudative material that always accompanies inflammation in any part of the body, is freely secreted, and this is followed by the copious discharge of pus which is virulently contagious. There are present, of course, the characteristic pain, redness, swelling, intolerance of light, and a copious discharge. But if everything goes well the fourth stage is marked



by the gradual disappearance of the secretion and a recession of the inflammation.

The pain caused by this affection is of the most excruciating character. To give you some idea how severe it is, an incident that happened several years ago, and has been recorded, is worth relating. At one time a slave ship sailing on the high seas had an outbreak of purulent ophthalmia on board. The ship was some distance from land and there were about three hundred slaves below the decks affected with the disease. No treatment was instituted at this time, but a little later some of them were allowed to come on deck to get some fresh air, and the suffering was so intense that most of those who had been allowed to come up committed suicide by jumping overboard. The great majority of those who did not meet this fate became totally blind.

**PROGRESS AND TERMINATION.**—If no complication presents itself and the disease does not pass into the chronic form, it usually lasts from three to four weeks. If it terminates directly in a cure, all of the

symptoms gradually diminish, and the conjunctiva returns slowly to a healthy condition. If any complication arises, however, or if the case passes into the chronic form, the affection becomes one of the greatest gravity. Small granulations begin to grow on the lids and what is known as granular conjunctivitis supervenes, a disease very difficult to eradicate, and the results may be opacities of the cornea, that part of the eye through which we see. This, of course, causes more or less impairment of vision, and if the disease progresses it may result in a perforation of the cornea, or ultimate blindness.

**PROGNOSIS.**—The prognosis of ophthalmia neonarum is not so bad as one would at first suppose it to be. But as complications may, and do, arise at any stage of the disease, and as it is, as before stated, the cause of more blindness than any other single factor, it is almost criminal to neglect those precautions and that practice which experience has shown us reduces the percentage of cases almost to *nil*.

**TREATMENT, PROPHYLACTIC.**—The treatment of this disease is divided into two parts prophylactic and curative. In the former division come all of those means which are used to prevent the disease. First of all the laity should be instructed concerning the great danger of ophthalmia and that as soon as any inflammation of the eye of the new-born occurs, no matter how slight, it should at once be reported to a regular practitioner. This idea is put into execution in many foreign countries, so well understood is the danger of the disease, and in Sheffield the eye infirmary distributes cards which read as follows: “If a baby’s eye run with matter and look red after birth, take it *at once* to a doctor. *Delay is dangerous* and one or both eyes may be destroyed if not treated *immediately*.” This advice cannot be too greatly emphasized, and it would be an excellent step towards the prevention of much blindness if all, or indeed some, of our infirmaries followed the same practice. Better still if our municipal authorities would take the matter in hand and distri-

bute printed circulars to each family, explaining the dangers of the disease and stating what should be done in case of an attack of it.

In some countries stringent regulations have been adopted as regards midwives and nurses, which are not only a protection to the infants but also to the nurses, as by following stated directions they are freed from all blame. In New York state the following has recently been enacted: "Should any midwife or nurse having charge of an infant in this state notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of said midwife or nurse so having charge of such infant to report the fact in writing within six hours to the nearest health officer, or some legally qualified practitioner of the city, town or district in which the parents of the infant reside." Some such law enacted in every state would cause the number of the most hopeless and helpless or all people, the blind, to be reduced in our public institutions.



In the beginning of the second stage of labor the vagina of the patient should be thoroughly irrigated with a solution of corrosive sublimate (strength 1-2000), or a solution of some other germicide as the obstetrician may prefer, but according to my belief corrosive sublimate is the best in use at present. The hands of the physician and the nurse, as well as all the instruments employed, should be thoroughly disinfected. The foetal eyes should be assisted to pass over the perineum without resting, for, as I have stated elsewhere, ophthalmia is frequently caused by the palpebral fissure being opened during the passage of the head over the tense perineum and the contagion thus introduced. The eyes can be made to pass over rapidly by hooking the middle finger of one hand over the perineum and drawing it downward.

As soon as the head is born, if there is time, the eyes should be wiped with small pieces of absorbent cotton or wool; and if there is not time before the birth of the body, it should be done before the cord is

tied. In doing this the cotton should be loosely packed into small pledgets and the eyes very gently wiped from above downward, which will facilitate the removal of any foreign material that may have accumulated around the eyeball. As soon as this is finished two drops of a five-grain solution of nitrate of silver should be dropped into each eye, though of course this cannot be done without the order of the physician in charge of the case, and I regret to be compelled to add that many do not seem to think it is necessary to take any such precaution, notwithstanding the fact that statistics show this disease to be the greatest known cause of blindness, and that when the above prophylactic treatment is used the percentage is reduced from ten per cent. to almost *nil*.

The above is known as the Cr  d   method, which has been slightly modified, the original being to instill one drop of a ten-grain solution of nitrate of silver into each eye. Ascertaining that as a rule this solution was stronger than required and excited too great a degree of inflammation, it is my

custom to have instilled into each eye two drops of a five-grain solution, which, though it may contain the same amount of silver, does not affect the conjunctiva so severely as does the stronger solution.

There is another method, known as the Hégar-Korhn, which consists in wiping the face and eyes immediately after birth with a solution of corrosive sublimate (strength 1-1000), and though statistics show very good results, I prefer the instillation of the astringent, believing it to be the surer and better method of prevention. In one thousand cases treated by the Crédé method not a single case of ophthalmia developed, while without it about 10 per cent. of all infants are affected with the disease. In the foundling hospitals of Paris the percentage of cases twenty years ago was from 80 per cent. to 90 per cent., while to-day it is 0.2 per cent., it being compulsory to use the Crédé prophylactic treatment.

The face of the child should never, under any circumstances, be washed with the same water with which the body has

been bathed, and different sponges or pieces of flannel should be used for the face and body. The reason is understood without being given.

It is very important that you should always wash your hands thoroughly after adjusting the mother before you touch the child, and you should guard against exposing it to any draughts, bright lights, etc., or allowing any soap to get into the eyes.

Curative.—Should you be so unfortunate as to have the disease occur the child must be isolated at once, and the physician notified.

If one eye only is affected the other should be guarded by covering it with a light bandage. The physician will instruct you to cleanse the eye every hour (perhaps more or less frequently than this, depending entirely upon the severity of the case) washing it first with warm water then with a solution of boric acid.

The best way to do this is to have some one sit in front of you and hold the child so that its head rests between your knees, with its face looking



upward, your lap being protected with a piece of gum cloth or a towel. The person in front holds the child's legs under her left arm and supporting the body on her raised knees, has her right hand at liberty, with which to assist you. In this position the eyes can be irrigated and the applications made to the conjunctiva with the least possible trouble.

To reduce the inflammation cold compresses are used. I prefer to have these made out of small pieces of lint, about the size of the one I show you here, and kept on ice, which cools them more thoroughly than water. They should be placed on the eye four in thickness and at first they should be changed every minute, the time between the applications being gradually lengthened. The compresses not only reduce the inflammation by processes which I will not describe to you this evening, and which are readily understood by every practitioner; but it is also claimed that they either destroy or prevent the development of the germ that causes ophthalmia, it having been proved by experiment

that the said germ cannot develop at, or below, a temperature of 32° F.

The eyelids are everted at stated intervals by the physician and applications of a solution of nitrate of silver made to the mucous membrane, great care being taken to apply it to all the folds. This stops the growth of the germs and substitutes a healthy for non-healthy inflammation.

Other applications rather than nitrate of silver are frequently made, among them being insufflations of iodoform, calomel and solutions of tannin, corrosive sublimate, peroxide of hydrogen and many others too numerous to mention. In my own experience, I have always found the solution of nitrate of silver to be the best, though it should not be used indiscriminately, nor applied, as many advise, with a camel's hair brush; but small pieces of cotton should be rolled on the end of a stick, as I show you here, dipped into the solution and touched to all parts of the conjunctiva, one being used for each eye, and burned immediately afterward, as should be all the pieces of cotton or lint

which come in contact with the eye. But no method will be of avail unless the physician is ably supported by the nurse in the thorough and frequent cleansing of the eye; for no matter what the character of the applications may be they will not rid the eye of the micro-organisms nor prevent their multiplication unless the nurse, with whom the case is entrusted, keeps the organ cleansed of all discharge during the intervals between the applications. And when you have become tired and weary and exhausted from nursing such a case and feel disposed to neglect it, even if only for a few moments, let me beg of you to look at the subject from a humane point of view, for I know of no act of charity or benevolence more praiseworthy than that of saving the eyesight of an infant unable to help itself, and thus preserving its future usefulness for its family, for mankind at large and for its Maker; and in after years when that same infant, now grown to manhood or womanhood, is able to realize the escape it had from blindness, much of which was due to your care-

ful nursing and your faithful attention, though you may not be aware of it, he will heap upon your head heartfelt blessings and praises, such as we all desire and can only obtain through our own efforts.

I have added to these remarks some suggestions collected from various sources which I have placed together as so many rules. In giving them to you I do so in part as a recapitulation, and perhaps am guilty of repetition; but if in so doing I am enabled to impress upon your minds some important facts relating to the disease and its prevention, so that you will in the future use them, I feel quite confident that you will assist very much to lessen the number of cases of ophthalmia neonatorum, and thereby in reducing the number of blind in our public institutions; and the purpose of my lecture will have been accomplished.

1. Before making a vaginal examination always cleanse the hands thoroughly with soap and warm water, followed by some antiseptic solution, taking care not to forget the finger-nails.



2. During labor assist the eyes to pass rapidly over the perineum.

3. Always cleanse the eyes of the infant in the manner I have explained to you *immediately* after birth.

4. Do not use the same water, for bathing the face and eyes, with which the body has been bathed, and always use different sponges or pieces of flannel.

5. Never employ one towel for two persons. Let everybody have his own.

6. Be careful not to allow any soap or bay rum to enter the eyes.

7. Keep the light in the lying-in chamber very dim, or have it shaded with some dark material, green being the least trying and the most restful to the eyes.

8. Always burn *immediately* everything that has come in contact with the ophthalmic discharge.

9. Instruct the laity, whenever the opportunity presents itself, of the great danger of ocular affections of the newborn, and the necessity of consulting a physician as soon as they are discovered.

And to the members of the profession present I would add:

10. Always use the Cr  d  , H  gar-Korhn or some such method of cleansing and stimulating the eyes of a new-born infant.



